

Message Text

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PAGE 01 MOSCOW 09754 071429Z

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TAGS: TGEN, ENRG, US, UR

SUBJECT: REPORT OF USDEL VISIT: US-USSR ENERGY AGREEMENT:
SUPERCONDUCTING TRANSMISSION (08.0207): STATUS AFTER
REFRIGERATOR CANCELLATION

REF: (A) MOSCOW 5681, (B) MOSCOW 5993

1. U.S. DEL HAD AS ITS PRINCIPAL GOAL AGREEMENT WITH THE SOVIETS
ON THE RESTRUCTING OF THE COOPERATIVE PROGRAM ON SUPERCONDUCTING
TRANSMISSION AFTER ELIMINATION OF EXCHANGES OF MAJOR HARDWARE.
GIVEN SOVIET SENSITIVITY TOWARD CANCELLATION OF HEAVY EQUIPMENT
EXCHANGE (REFS A,B), DELEGATION'S SUCCESSFUL NEGOTIATION
OF MODIFIED PROGRAM AND CONSTRUCTIVE ATTITUDE DISPLAYED BY SOVIET
PROJECT DIRECTOR AND ENERGY AGREEMENT LEADER BODE WELL FOR
COOPERATIVE RESEARCH IN THIS AREA USEFUL TO U.S. PROGRAMS.

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PAGE 02 MOSCOW 09754 071429Z

2. AGREED PROGRAM OUTLINES COOPERATIVE ACTIVITIES THROUGH
ABOUT 1980. NEXT EXCHANGE VISIT WILL BE SOVDEL, WHICH U.S. WORKING
GROUP CHAIRMAN AGREED TO RECEIVE IN SEPTEMBER, TO WORK ON
SHORT-CABLE REFRIGERATION STUDIES, PRINCIPALLY AT BROOKHAVEN
NATIONAL LABORATORY. NEXT U.S. DELEGATION TO THE SOVIET UNION,
CURRENTLY SCHEDULED FOR THIS NOVEMBER, WILL CONCENTRATE ON
HYDRO-DYNAMICS AND HEAT TRANSFER. NEW PROGRAM ALLOWS FOR

SAMPLE EXCHANGES, BUT NO EXCHANGES OF EQUIPMENT ARE CONTEMPLATED. HENCEFORTH GREATER EMPHASIS WILL BE PLACED ON THE SEVERAL INDIVIDUAL PROJECT GROUPS WORKING IN SPECIFIC AREAS.

3. DELEGATION VISIT FORTUITOUSLY CONCIDED WITH MHD MAGNET ARRIVAL. DELEGATION WAS PRESENTED TO DEPUTY MINISTER LOPATIN AT AIRPORT CEREMONY FOR RECEIPT OF MAGNET, A TIME WHEN LOPATIN WAS CLEARLY POSITIVELY INFLUENCED BY SUCCESS OF MHD PROGRAM. THE DELEGATION REPORTED THAT WITH THE INITIAL HIGH-LEVEL MEETING STRUCK ON A POSITIVE NOTE, THE SOVIETS IN SUBSEQUENT DISCUSSIONS MINIMIZED THE NEGATIVE EFFECTS OF U.S.-SUGGESTED CANCELLATION OF EXCHANGE OF EQUIPMENT. IN FINAL MEETING, SOVIET WORKING GROUP LEADER LEVITOV AND DEPUTY MINISTER LOPATIN REFERRED TO THEIR REGRET OF U.S. DECISION AND TO SOME CONSEQUENT DISPLACEMENT OF SOVIET PROGRAM, BUT THEY EMPHASIZED THAT SOVIETS BELIEVE THAT CANCELLATION PROBLEM IS IN THE PAST; THEY WISH TO LOOK TO THE FUTURE FOR SIGNIFICANT COOPERATION. LOPATIN EXPRESSED VIEW THAT SUPERCONDUCTING TRANSMISSION IS "ONE OF THE TWO SOLID AREAS" IN THE ENERGY COOPERATION (WE BELIEVE HE MEANS MHD TO BE THE OTHER.)

4. DELEGATION ALSO GAINED INFORMATION ON SOVIET EFFORTS IN SUPERCONDUCTING TRANSMISSION. DELEGATION LEADER LONG CONTRASTED U.S. AND SOVIET EFFORTS: U.S. HAS RECENTLY REALIZED THAT ITS OWN NECESSITY FOR SUPERCONDUCTING LINES IS LESS CRITICAL THAN LIMITED OFFICIAL USE

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PAGE 03 MOSCOW 09754 071429Z

EARLIER THOUGHT, WHEREAS SOVIETS HAVE FOUND, BECAUSE OF DISTANCES INVOLVED, THAT THEIR NEED IS LARGER THAN THEY ANTICIPATED. (SOVIET NEED FOR SUPERCONDUCTING TRANSMISSION ARISES FROM SEPARATION OF POPULATION CENTERS IN WEST FROM ENERGY RESOURCES IN THE EAST. FOR THE FORESEEABLE FUTURE THE RAIL LINES WILL BE UNABLE TO TRANSPORT SUFFICIENT QUANTITIES OF THE HYDROCARBONS, SO SOVIETS MUST BURN THE COAL NEAR ITS SOURCE AND TRANSMIT THE ELECTRICITY WESTWARD WITH MINIMUM POWER LOSS.) THUS SOVIETS ARE MARKEDLY INCREASING THEIR EFFORTS IN SUPER-CONDUCTING TRANSMISSION AT TIME WHEN U.S. NATIONAL PROGRAM IS CONTRACTING.

5. DELEGATION BELIEVES BOTH FROM COMMENTS OF LEVITOV AND LOPATIN AND FROM FACILITIES THEY VISITED THAT SOVIETS PLACED HIGH PRIORITY IN SUPERCONDUCTING TRANSMISSION. SOVIET EFFORTS ARE NOW WELL COORDINATED FROM THE TOP OF THE ORGANIZATIONS INVOLVED, AND DELEGATION BELIEVES THAT SOVIETS SHOULD BE CAPABLE OF SIGNIFICANT PROGRESS IF THEIR EFFORTS CONTINUE APACE. DELEGATION ALSO NOTED SEVERAL AREAS WHERE SOVIETS HAVE PUT SOME EFFORTS, YET WHICH HAVE PRODUCED NO COOPERATIVE CONTACTS WITH THE U.S.: SHORT FORCE-COOLED OIL CABLES, CYROGENIC RESISTIVE WORK, AND WORK WITH SULPHUR HEXAFLOURIDE.

6. DELEGATION WAS ADMITTED INTO CRYOGENMASH FACILITY, WHICH U.S. HAD BEEN TRYING UNSUCCESSFULLY TO SEE SINCE THE BEGINNING OF THE COOPERATION. CRYOGENMASH IS AN OLD FACILITY, BUT DELEGATION BELIEVES THAT THE GREATER PART OF THE CRYOGENIC EQUIPMENT AT THE FACILITY IS LESS THAN TWO YEARS OLD. DELEGATION WAS IMPRESSED AND SURPRISED BY THE QUALITY OF WORK ON TRANSMISSION LINES UNDERWAY AT THE FACILITY, CHARACTERISING THE RESEARCH AS "ELEGENT." ACCORDING TO DEL, U.S. HAS NO EQUIVALENT TO CRYOGENMASH: IN THIS SINGLE FACILITY, MANUFACTURING, TESTING AND DEMONSTRATION OF TRANSMISSION LINES ARE CARRIED OUT. IN DECEMBER, 1977, FOR EXAMPLE, SOVIETS PLAN TO TEST A NEW HUNDRED-METER CABLE ENVELOPE, AND DELEGATION BELIEVES THAT CRYOGENMASH'S LIMITED OFFICIAL USE

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PAGE 04 MOSCOW 09754 071429Z

MULTI-FUNCTION CAPABILITY SHOULD MAKE THE MANUFACTURING AND TESTING EASIER.

7. FROM COMMENTS OF SOVIET HOSTS AND OBSERVATIONS OF SOVIET EQUIPMENT, DELEGATION IS CONVINCED THAT WHEREAS U.S. CANCELLATION OF REFRIGERATOR LOAN PUT CRIMP INTO SOVIET SUPERCONDUCTING PROGRAM (LEVITOV HAD NOT ORDERED SOVIET-MADE REFRIGERATOR, AND WHEN HE DOES GET ONE, AT LEAST ONE OF THE PLANNED EXPERIMENTS WILL NOT BE POSSIBLE), THE CANCELLATION WILL BY NO MEANS CRIPPLE THE PROGRAM AND SOVIETS ARE TECHNICALLY CAPABLE OF REPLACING THE REFRIGERATOR. IN THIS REGARD, DELEGATION HEARD PLANS THAT KURCHATOV INSTITUTE WILL SOON RECEIVE SOVIET-MADE 600-WATT CRYOGENIC REFRIGERATOR WITH TURBO-EXPANDER, EQUIVALENT TO U.S. MODEL, FOR WORK AT THE T-7 TOKAMAK.

8. IN FINAL MEETING, DEPUTY MINISTER LOPATIN REQUESTED INFORMATION ABOUT ANY LONG-STANDING DIFFICULTIES IN THE COOPERATIVE AREAS. DELEGATION RESPONDED AS FOLLOWS: (1) U.S. DELEGATIONS SHOULD PARTICIPATE IN PLANNING AND SET-UP OF EXPERIMENTS AND NOT SOLELY IN THEIR EXECUTION. IN THE PAST, SOVIETS HAVE INVITED U.S. DELEGATIONS TO "JOINT EXPERIMENTS" THAT SOVIETS HAD ALREADY PERFORMED ONCE BEFORE DELEGATION ARRIVAL TO MAKE SURE THAT EXPERIMENT WOULD GO AS PLANNED. (2) U.S. WANTS PRE-PRINTS OF ARTICLES BEARING ON COOPERATION AND SHOULD NOT BE SUBJECTED TO WAITING TIME FOR INFORMATION TO BE PUBLISHED. SHARED EXPERIMENTS SHOULD PRODUCE SHARED DATA. (3) IN PREPARING SCHEDULES FOR U.S. DELEGATIONS, SOVIETS SHOULD OFFER ALTERNATIVES AND BE MORE FLEXIBLE. SITES TO BE VISITED SHOULD INCLUDE ALL THOSE DURING WORK IN THE AREA AND NOT BE CONSTRAINED SOLELY TO SITES DIRECTLY UNDER CONTROL OF WORKING GROUP CHAIRMAN. (4) JOINT EXPERIMENTS REQUIRE ACCESS TO LARGE SCALE FACILITIES. SOVIETS HAVE BEEN INVITED TO BROOKHAVEN; WE WOULD LIMITED OFFICIAL USE

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PAGE 05 MOSCOW 09754 071429Z

LIKE WIDER ACCESS HERE. (5) U.S. NEEDS ACCESS TO SOVIET WORK ON SUPERCONDUCTING MATERIALS. DELEGATION EXPRESSED APPRECIATION FOR LONG-WAITED VISIT TO CRYOGENMASH AND MOSENERGO BUT NOTED THAT SUBSEQUENT DELEGATIONS SHOULD BE PROVIDED ACCESS TO SOVIET WORK IN THE HELIUM INSTITUTE AND OTHER FACILITIES WORKING ON CYROGENIC SUPPORT MATERIALS. FOR ALL THE DISCUSSION OF THE SOVIET CABLES, U.S. DELS HAVE SEEN SCANT MATERIAL. DELEGATION LEADER LONG PLANS TO FOLLOW UP THIS LIST WITH LETTER TO LOPATIN, WHO PROMISED TO ATTEMPT TO SOLVE OR REDUCE THESE PROBLEMS.

9. DELEGATION WAS ENCOURAGED BY PROGRESS MADE IN MUTUAL UNDERSTANDING OF GOALS AND PROBLEMS DURING MEETINGS, AND EXPRESSED BELIEF THAT JOINT PROGRAM CAN BE OF SIGNIFICANT ASSISTANCE TO THE U.S. PROGRAM IN SUPERCONDUCTING TRANSMISSION, WHICH IS NOW BEING RE-FOCUSED TOWARD PRINCIPAL EFFORTS IN LARGE-CAPACITY LINES.
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